

Governor's STEM Academy Brief



Office of Career and Technical Education Services

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The purpose of the monthly brief is to provide information, resources, and a networking vehicle to support the STEM (science, technology, engineering, and mathematics) Academies in Virginia.

GOVERNOR'S STEM ACADEMIES SPOTLIGHTS

Congratulations to the Burton Motorsports team at the Roanoke County Governor's STEM Academy at Burton Center for Arts & Technology who won first place in the nation at the Hot Rodders of Tomorrow Engine Challenge in Indianapolis, during the week of December 8. The Engine Challenge offers teams of students the opportunity to compete, using strictly outlined criteria, in disassembling and rebuilding a small-block Chevy engine in the shortest time with minimal penalties. The team worked throughout the regional qualifying events to reduce their times and posted a new individual-run national record of 16 minutes and 22 seconds! Each of the six students on the national championship team earned \$10,000 in scholarships to three different trade schools--\$30,000 individual and \$180,000 cumulative for the team!

The first step in the summer internship program at the Governor's Career and Technical Academy in Arlington (GCTAA) allowed 40 Automotive Youth Education System (AYES) students to visit 12 participating locations in November and to shadow master technicians, service writers, parts department personnel, and other professionals.

Students at the Northern Neck Regional Technical Center Governor's Stem Academy for Agriculture and Maritime Studies have the opportunity to enroll in Marine Service Technology I and II. The courses provide an opportunity for students to practice boating safety; to acquire basic navigation skills; to demonstrate woodworking and fiberglass construction and repair skills; to maintain and repair outboard engine systems; and to practice safe vessel transportation. Students obtain their boating license and have the opportunity to acquire their OSHA Safety Workplace Readiness Skills for the Commonwealth credentials during the first year and The American Boat and Yacht Council (ABYC) Standard certification during the second year as students acquire more advanced skills.

CAREER LINKS—TRANSPORTATION, DISTRIBUTION & LOGISTICS

- For career options related to transportation, distribution, and logistics, visit [O*NET OnLine](#), [mySkills myFuture](#), [Recruiter](#), [My Next Move](#), and [Mi Proximo Paso](#) (a Spanish-language version of My Next Move). [Gadball.com](#) and [Career One Stop's Career and Cluster Videos](#) feature career videos.
- Among reports about the future need for improved public transit are [Millennials in Motion: Changing Travel Habits Among Young Americans and their Implications for Public Policy](#) and [Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows](#).
- For current technologies in public transportation, visit [AE Public Transportation](#), [SustainableCitiesCollective](#), [Diesel Technology Forum](#), and [American Public Transportation Association](#); to explore the future of transportation, visit [A.T. Kearney's Transportation, Travel, and Infrastructure](#), [Discovery News](#), [Re-Programming Mobility](#), and [Future for All](#).
- For the latest in bicycle and pedestrian transportation, visit [Bikes as Transportation](#), [City of Richmond Pedestrian Bicycle and Trails Commission](#), [Pedestrian and Bicycle Information Center](#), [Pedestrian Infrastructure](#), [Accommodating Bicycle and Pedestrian Travel: A Recommended Approach](#), and [Victoria Walks](#).

- To explore the field of logistics and predictions for its future, see [Discover Logistics](#), [Future of Logistics and Supply Chain Management](#), : [Supply Chain and Logistics Predictions for 2014](#), [Logistics Trend Radar, 2014](#), [Logistics Management](#), [Warehousing: Three Trends to Watch](#), and [Logistics Market Reports 2014](#). and [12 Trends that are Shaping the Future of Logistics](#).

GRANTS AND OPPORTUNITIES

- The Toshiba/NSTA ExploraVision STEM competition allows students, led by a teacher, to work in groups of two to four to simulate real research and development as they pick a current technology, research it, envision what it might look like in 20 years, and describe the development steps, pros and cons, and obstacles. You can learn more at [sample projects](#) and register your submissions by the **January 30 deadline**. To celebrate ExploraVision's 23rd anniversary, the top 23 teachers who submit over 23 eligible online entries will win a Toshiba Tablet.
- Fairfax County Public Schools High School Academies will host the annual STEM-H Expo on Saturday, February 21, 2015 at Chantilly High School. Over 400 students, parents, and community members attended last year's Expo and had the opportunity to network with over 30 business leaders in the fields of science, technology, engineering, mathematics, and health sciences.
- Students can learn about career paths for **STEM** while competing in [The Apprentice School SNAME Boat Design Competition](#). The Newport News Shipbuilding [Apprentice School](#) provides educational, leadership and career opportunities for students interested in shipbuilding careers. Apprentices will build the top four boat designs submitted from high schools across the United States to determine the overall best design. At the April 25, 2015 conclusion of the competition, the four finalists will receive their boats to display in their schools. The finalist competition will take place on Lake Maury at [The Mariners' Museum](#).

INSTRUCTIONAL STRATEGIES

- Educational sites featuring transportation engineering include [Transportation Systems Engineering – Teacher Resources](#) and [Intelligent Transportation Systems ePrimer](#). For transportation/science modules, see [Advanced Transportation Technology science modules and PBS Teachers: Science and Tech](#).
- Transportation, Distribution & Logistics lesson plans and other classroom resources are featured in [National Renewable Energy Laboratory](#), and [PBS Teachers: Science and Tech](#).
- Introduce students to current ideas about highway transportation through sites such as [Highway Boondoggles: Wasted Money and America's Transportation Future](#) and [A New Way to Go: The Transportation Apps and Vehicle-Sharing Tools that Are Giving More Americans the Freedom to Drive Less](#).
- Visit [The Truckers Report](#) for a [Library](#) of resources, [Free 2014 CDL Practice Tests](#), and lesson plans about [Goods and Services and How We Get Them](#) (scroll for secondary-level lessons).
- Rail *freight* classroom resources include [Freight Rail Today](#), [CSX: How tomorrow moves](#), and [Intermodal Advantage](#). Rail *passenger* transportation resources may be found at [Amtrak](#), the [Railroad B&O Museum \(including lesson plans\)](#), and the [National Education Association](#).
- For lessons and other resources about bridges and tunnels, see [Distance Formula/Bridge Building](#), [Bridge Repair](#), [Bridges](#), [Makers: Engineering](#) (scroll for bridge-related items), [Building Bridges](#), [Bridges in Virginia](#), and [Tunnels](#).
- Aviation and space teaching resources are available at [NASA Physics and Engineering Collection](#), [Flight, University of Missouri's eThemes: Aviation](#), [NASA Math and Science @ Work](#), [NASA Aerodynamics Index](#), [NASA Jet Propulsion Laboratory](#), [NASA - Educators](#), [FAA: Aviation and Space Education](#), and [Flight Training Lesson Plans](#).
- Various automotive classroom resources are located at [Education World](#), [College Board](#), [Internet4Classrooms](#), [Autoshop101](#), [JamesHalderman.com](#), [Transportation, Distribution, and Logistics: Tire and Wheel Assemblies](#), and [Illinois Curriculum Revitalization: Technology & Engineering Education](#).

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